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NEW YORK BOTANICAL GARDEN.

NOTES ON FERNS SEEN DURING THE SUMMER OF 1908

BY RALPH CURTISS BENEDICT

Dryopteris Goldicana × *marginalis* Dowell.

A second locality for this interesting hybrid is to be recorded, the Green Lake region near Jamesville, N. Y., where so many ferns are found. The original collection of *D. Goldicana* × *intermedia* Dowell was made in the same region, and the trip in question had in view the finding of this fern, but it was not secured again although the parent species were seen in abundance and

often in close proximity. Two rather small but fruiting plants of *D. Goldieana* × *marginalis* were found, evidently off-shoots of a single original plant. The plants are now growing at the New York Botanical Garden where they will not only have good conditions for growth, but will also be protected from chance injury by cattle, or careless or ignorant collectors. It is suggested that rare hybrids constitute a type of plant which it is advisable always to protect by transplanting if proper care can be given them, since otherwise a locality may easily happen to be lost or destroyed.

Dryopteris simulata Davenport.

Two localities are here reported which it is believed extend the range considerably, at least in New York state.

At Quiver Pond, about one quarter mile south of the central part of Fourth Lake, Herkimer County, N. Y. The fern grew here in abundance, forming dense clumps on the higher portions of a sphagnum swamp. A few scattered plants of *D. Thelypteris* were also seen, but apparently it did not thrive there as well as its less common relative.

A second locality was noted at Horseshoe, St. Lawrence County, where the fern grew in a situation similar to that at Quiver Pond. So far as the writer knows the only previous collection north of the lower part of the state is that of H. D. House near Oneida Lake, and the occurrence so far to the north suggests that the fern may eventually be found in Canada. It is likely, too, that it will prove to be much commoner than has been supposed.

Dryopteris dilatata (Hoffm.) Gray.

On Blue Mt., N. Y., from about 3,000 feet to the summit. This find was of particular interest to me as it was my first opportunity to see this fern in its natural habitat. Its range was overlapped for perhaps two or three hundred feet (in altitude) by *D. intermedia* (Muhl.) Gray from which, however, it could easily be distinguished in size, shape, and texture. *D. spinulosa* (Müll.) Ktze., which in this country is usually considered to include the two preceding, was not seen at all.

The use of the binomial *D. dilatata* is in agreement with a common practice in Europe, and has been supported, and rightly as it seems to me, by many well-known fern students. *D. intermedia* (Muhl.) Gray, which does not occur in Europe, I believe to be similarly distinct, and hope later to give sufficient reason for this opinion.

Osmunda cinnamomea L.

Two aberrant forms of this species were noted during the summer. The first was a physiological freak, apparently a variant from the *frondosa* form which is known to occur on burnt-over land, as was the case at the locality in question, a roadside swamp in the town of Cornwall, Ct. The peculiarity of the *frondosa* form is the replacement of some of the fertile pinnae by green vegetative ones so that a single frond shows both sorts. In the present instance, the *frondosa* form was not seen but apparently the same result, an increase of the vegetative tissue, was attained. The fronds appeared strongly crested owing to a more or less irregular enlargement of the pinnulae which, besides being expanded and curled, were mostly deeply dentate. Few fertile fronds were seen.

The other form was first found by Miss Harriet Mulford near Hempstead, Long Island, where several plants were seen. Later I found two plants in the Cornwall swamp above mentioned. The peculiarity in this consisted in an excessive development of the lower basal pinnulae which in many cases were at least half as long as the pinnae themselves. As the fronds were nearly erect, and the pinnae about horizontal, the effect was to give the fronds a thick plummy appearance, making the plants exceptionally attractive from a horticultural standpoint.